

**AMENDMENTS TO THE CLAIMS**

The Listing of claims below replaces all prior versions, and listings, of claims in the application.

- 1-11. (canceled)
12. (currently amended) A multitube reactor (13) which has a catalyst tube bundle (18) comprising numerous parallel catalyst tubes (17) arranged within an outer wall (15), said catalyst tube bundle (18) having from 10,000 to 50,000 catalyst tubes (17), and having means for introducing and discharging a heat transfer medium, said means being adapted such that the heat transfer medium, is essentially conveyed radially or transversely around the catalyst tubes, wherein the ratio  $t/d_a$  of tube spacing  $t$  to the external diameter  $d_a$  of a catalyst tube is in the range from 1.3 to 1.6,  
wherein the ratio  $t/d_a$  of tube spacing  $t$  to the external diameter  $d_a$  of a catalyst tube rises with increasing transverse dimensions of the catalyst tube bundle.
13. (canceled)
14. (currently amended) A multitube reactor as claimed in claim 12, wherein the catalyst tube bundle (18) has an essentially circular cross section having an external diameter  $d_{RBa}$  of more than 4 m.
15. (currently amended) A multitube reactor as claimed in claim 14, wherein the external diameter  $d_{RBa}$  of the catalyst tube bundle (18) is from 4 m to 12 m.
16. (currently amended) A multitube reactor as claimed in claim 15, wherein the external diameter  $d_{RBa}$  of the catalyst tube bundle (18) is from 4 m to 10 m and the

ratio  $t/d_a$  of tube spacing  $t$  to the external diameter  $d_a$  of a catalyst tube (17) is in the range from 1.3 to 1.5.

17. (currently amended) A multitube reactor as claimed in claim 12, wherein the catalyst tube bundle (18) has an essentially rectangular cross section with a tube bundle depth  $d_{RBt}$  measured parallel to the flow direction of the heat transfer medium of at least 1.3 m.
18. (currently amended) A multitube reactor as claimed in claim 17, wherein the depth  $d_{RBt}$  of the catalyst tube bundle (18) is from 1.3 to 4 m.
19. (currently amended) A multitube reactor as claimed in claim 12, wherein the reactor is divided, in the longitudinal direction of the catalyst tubes (17), into at least two zones (36,37), with a flow of heat transfer medium of different temperature being provided in each zone.
- 20-25. (canceled)
26. (previously presented) A multitube reactor as claimed in claim 12, wherein said means for introducing and discharging a heat transfer medium are adapted so as to direct the heat transfer medium in a meandering path.
27. (previously presented) A multitube reactor as claimed in claim 12, wherein said catalyst tube bundle has from 10,000 to 30,000 catalyst tubes.
28. (new) A multitube reactor as claimed in claim 12, wherein said transverse dimensions of the catalyst tube bundle has an external diameter  $d_{RBa}$ , and wherein the ratio  $t/d_a$  rises in a range from 1.3 to 1.6 with the external diameter  $d_{RBa}$  of the catalyst tube bundle increasing from 4m to 12m for a catalyst tube

bundle having an essentially circular cross section or a tube bundle depth  $d_{RBt}$  measured parallel to a flow direction of the heat transfer medium increasing from 1.3m to 4m for a catalyst bundle having an essentially rectangular cross section.

29. (new) A multitube reactor which has a catalyst tube bundle comprising numerous parallel catalyst tubes arranged within an outer wall, said catalyst tube bundle having from 10,000 to 50,000 catalyst tubes, and having means for introducing and discharging a heat transfer medium said means being adapted such that the heat transfer medium, is essentially conveyed radially or transversely around the catalyst tubes, wherein the ratio  $t/d_a$  of tube spacing  $t$  to the external diameter  $d_a$  of a catalyst tube is in the range from 1.3 to 1.6, wherein the ratio  $t/d_a$  of tube spacing  $t$  to the external diameter  $d_a$  of a catalyst tube rises in a range of from 1.3 to 1.6 with an external diameter  $d_{RBa}$  of the catalyst tube bundle increasing from 4m to 12m for a catalyst tube bundle having an essentially circular cross section or a tube bundle depth  $d_{RBt}$  measured parallel to the flow direction of the heat transfer medium increasing from 1.3m to 4m for a catalyst bundle having an essentially rectangular cross section.